

Newer iron supplements for anemia

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Clinical question

Are newer oral iron formulations (iron polysaccharide complex or heme iron polypeptide) better than ferrous salts for iron deficiency anemia (IDA)?

Bottom line

Newer iron formulations appear to be inferior. Ferrous salts improve hemoglobin (Hb) levels by up to 10 to 20 g/L more, with IDA resolution in perhaps 1 in 5 more patients at 3 months. Evidence that newer formulations have fewer adverse effects is inconsistent.

Evidence

The following evidence is from RCTs. Differences are statistically significant unless otherwise indicated.

- Iron polysaccharide (Niferex) compared with ferrous fumarate (both about 150 mg/d elemental iron) in 80 patients (92% female, mean age 39)¹: After 12 weeks, ferrous fumarate improved Hb levels (28.4 g/L) more than iron polysaccharide (6 g/L) did, and patients had better serum ferritin levels, mean corpuscular volume, and transferrin saturation but more nausea (31% vs 3%).
- Iron polysaccharide (NovaFerrum) compared with ferrous sulfate (both 3 mg/kg/d elemental iron) in 80 children (mean age 23 months)²: After 12 weeks, ferrous sulfate improved Hb levels more (10 g/L), resolved IDA more often (29% vs 6%, number need to treat of 5), and caused less diarrhea (35% vs 58%).
- Smaller trials of adults (n=43)³ and premature infants (n=32)⁴ comparing iron polysaccharide and ferrous salts found no differences in Hb improvement at 4 to 6 weeks.
- Dialysis patients: At 6 months, ferrous salts were no different from newer formulations in transferrin saturation^{5,6} or proportion of iron-replete patients.⁵ Ferritin levels (about 160 µg/L) were better with ferrous sulfate than with heme iron (Proferrin ES).⁵
- Post-gastric bypass (n=14)⁷: Ferrous sulfate improved Hb levels after 8 weeks, but heme iron (Proferrin ES) did not.
- Blood donors (n=97)⁸ and pregnant patients (n=90)⁹: Heme iron with ferrous fumarate (Hemofer) was no different from higher-dose ferrous fumarate alone^{8,9}; ferrous fumarate alone caused more constipation (35% vs 14%).⁸

Context

- Trials had multiple limitations: underpowered,^{2,4,6-9} multiple outcomes,¹⁻⁹ and not intention-to-treat.^{1,2,5}

- Approximate costs per month for 100 mg of elemental iron per day¹⁰: ferrous fumarate or sulfate (generics, \$5 to \$10), ferrous fumarate (Palafer, \$35), and iron polysaccharide complexes (Feramax, \$35).

Implementation

The cause of IDA should be determined. Treatment with ferrous salts (100 to 200 mg/d elemental iron)¹¹ might take up to 3 months to normalize Hb levels and replenish iron stores.¹² Newer formulations are more expensive and do not appear to provide additional benefit. Gastrointestinal side effects are common; compliance might improve with lower doses, alternate-day dosing, or selecting ferrous gluconate or sulfate over fumarate.¹³ In patients who fail oral therapy or with poor oral absorption (eg, inflammatory bowel disease), intravenous iron can be considered.^{12,14} 🌿

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Competing interests

None declared

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